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(54) **METHOD AND SYSTEM FOR MITIGATING INVASION RISK ASSOCIATED WITH STRANGER INTERACTIONS IN A SECURITY SYSTEM ENVIRONMENT**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,465,904 A 8/1984 Gottsegen et al.
4,692,742 A 9/1987 Raizen et al.
4,918,717 A 4/1990 Bissonnette et al.
5,134,644 A 7/1992 Garton et al.
5,195,126 A 3/1993 Carrier et al.
5,365,568 A 11/1994 Gilbert
5,400,011 A 3/1995 Sutton
5,463,595 A 10/1995 Rodhall
5,568,475 A 10/1996 Doshi et al.
5,736,927 A 4/1998 Stebbins et al.
5,796,633 A 8/1998 Burgess et al.
5,808,547 A 9/1998 Carney
5,838,223 A 11/1998 Gallant et al.
5,877,684 A 3/1999 Lu
5,923,731 A 7/1999 McClure
5,940,474 A 8/1999 Ruus
6,075,451 A 6/2000 Lebowitz et al.
6,215,404 B1 4/2001 Morales
6,243,373 B1 6/2001 Turock
6,272,212 B1 8/2001 Wulforst et al.
6,288,642 B1 9/2001 Dohrmann
6,311,072 B1 10/2001 Barclay et al.
6,369,705 B1 4/2002 Kennedy
6,381,307 B1 4/2002 Jeffers et al.
6,400,265 B1 6/2002 Saylor et al.
(Continued)

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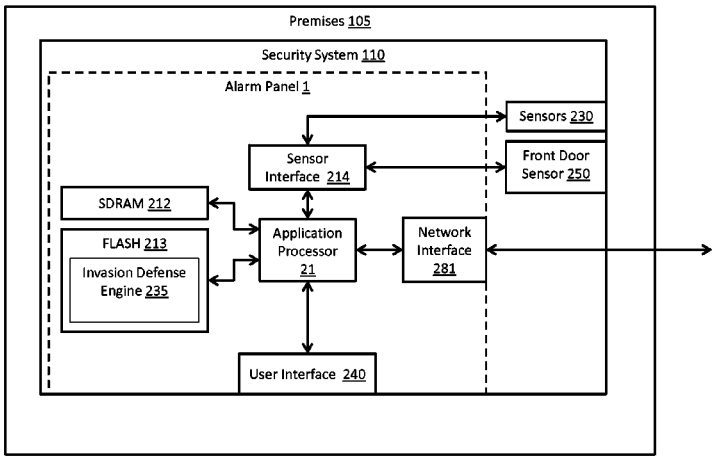
(57) **ABSTRACT**

A security system can mitigate invasion risk faced by a homeowner or other person responding to a stranger who is seeking to interact with the responder or to gain premises access, for example when a supposed deliveryman approaches the front door. The homeowner can make an entry into a user interface of the security system in preparation for interacting with the stranger, such as to answer the front door. If the user does not make a second entry within a specified period of time indicating that the interaction was safely completed, the security system can raise an alarm or otherwise dispatch help. If the stranger turns out to be an intruder and forces the homeowner to make the second, all-clear entry, the homeowner can make a duress entry that appears to be an all-clear entry but in fact triggers a silent alarm or otherwise summons help.

20 Claims, 6 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

6,438,124	B1	8/2002	Wilkes et al.	
6,452,490	B1	9/2002	Garland et al.	
6,493,435	B1	12/2002	Petricoin	
6,553,100	B1	4/2003	Chen et al.	
6,574,480	B1	6/2003	Foladare et al.	
6,577,234	B1	6/2003	Dohrmann	
6,603,845	B2	8/2003	Jensen et al.	
6,661,340	B1	12/2003	Saylor et al.	
6,683,526	B2	1/2004	Bellin	
6,829,478	B1	12/2004	Layton et al.	
6,831,557	B1	12/2004	Hess	
6,870,906	B2	3/2005	Dawson	
6,928,148	B2	8/2005	Simon et al.	
6,965,313	B1	11/2005	Saylor et al.	
6,973,165	B2	12/2005	Giacopelli et al.	
7,002,462	B2	2/2006	Welch	
7,009,519	B2	3/2006	Leonard et al.	
7,103,152	B2	9/2006	Naidoo et al.	
7,113,090	B1	9/2006	Saylor et al.	
7,119,609	B2	10/2006	Naidoo et al.	
7,245,703	B2	7/2007	Elliot et al.	
7,262,690	B2	8/2007	Heaton et al.	
7,406,710	B1	7/2008	Zellner et al.	
7,429,921	B2	9/2008	Seeley et al.	
7,440,554	B2	10/2008	Elliot et al.	
7,542,721	B1	6/2009	Bonner et al.	
7,558,379	B2	7/2009	Winick	
7,593,512	B2	9/2009	Elliot et al.	
7,593,513	B2	9/2009	Muller	
7,613,278	B2	11/2009	Elliot et al.	
7,619,512	B2	11/2009	Trundle et al.	
7,633,385	B2	12/2009	Cohn et al.	
7,653,186	B2	1/2010	Hosain et al.	
7,734,020	B2	6/2010	Elliot et al.	
7,751,540	B2	7/2010	Whitfield et al.	
7,778,394	B2	8/2010	Small et al.	
7,820,841	B2	10/2010	Van Toor et al.	
7,848,505	B2	12/2010	Martin et al.	
7,853,200	B2	12/2010	Blum et al.	
7,855,635	B2	12/2010	Cohn et al.	
7,911,341	B2	3/2011	Raji et al.	
7,920,841	B2	4/2011	Martin et al.	
7,920,842	B2	4/2011	Martin et al.	
7,920,843	B2	4/2011	Martin et al.	
7,961,088	B2	6/2011	Watts et al.	
8,022,807	B2	9/2011	Martin et al.	
8,073,931	B2	12/2011	Dawes et al.	
8,116,724	B2	2/2012	Peabody	
8,214,494	B1	7/2012	Slavin	
8,335,842	B2	12/2012	Raji et al.	
8,350,694	B1	1/2013	Trundle et al.	
8,395,494	B2	3/2013	Trundle et al.	
8,456,293	B1	6/2013	Trundle et al.	
8,473,619	B2	6/2013	Baum et al.	
8,478,844	B2	7/2013	Baum et al.	
8,493,202	B1	7/2013	Trundle et al.	
8,520,072	B1	8/2013	Slavin et al.	
8,525,665	B1	9/2013	Trundle et al.	
8,626,151	B2	1/2014	Beppler et al.	
2002/0103898	A1	8/2002	Moyer	
2002/0147982	A1	10/2002	Naidoo et al.	
2002/0176581	A1	11/2002	Bilgic	
2002/0177428	A1	11/2002	Menard et al.	
2003/0027547	A1	2/2003	Wade	
2003/0071724	A1	4/2003	D'Amico	
2003/0128115	A1	7/2003	Giacopelli et al.	
2004/0005044	A1	1/2004	Yeh	
2004/0086088	A1	5/2004	Naidoo	
2004/0086093	A1	5/2004	Schranz	
2005/0099893	A1	5/2005	Jyrinki	
2006/0023848	A1	2/2006	Mohler et al.	
2006/0176167	A1	8/2006	Dohrmann	
2006/0239250	A1	10/2006	Elliot et al.	
2007/0115930	A1	5/2007	Reynolds et al.	
2007/0143838	A1	6/2007	Milligan	
2007/0155412	A1	7/2007	Kalsukis	
2008/0084291	A1	4/2008	Campion, Jr.	
2008/0117029	A1	5/2008	Dohrmann et al.	
2008/0191861	A1*	8/2008	Mason	G08B 25/001 340/506
2008/0191863	A1	8/2008	Boling	
2009/0017757	A1	1/2009	Koga	
2009/0077622	A1	3/2009	Baum et al.	
2009/0213999	A1	8/2009	Farrand	
2009/0248967	A1	10/2009	Sharma et al.	
2009/0264155	A1	10/2009	Nakayama et al.	
2009/0274104	A1	11/2009	Addy	
2010/0007488	A1	1/2010	Sharma et al.	
2010/0052890	A1	3/2010	Trundle	
2010/0121948	A1	5/2010	Procopio	
2010/0277271	A1	11/2010	Elliot et al.	
2010/0277302	A1*	11/2010	Cohn	G08B 25/001 340/514
2010/0289643	A1	11/2010	Trundle	
2010/0289644	A1	11/2010	Slavin	
2011/0065414	A1	3/2011	Frenette	
2011/0156904	A1*	6/2011	Gilbert	G08B 25/008 340/541
2011/0169628	A1	7/2011	Elliot	
2012/0027010	A1	2/2012	Elliot	
2012/0139718	A1	6/2012	Foisy et al.	
2012/0250833	A1	10/2012	Smith et al.	
2012/0250834	A1	10/2012	Smith	
2012/0275588	A1	11/2012	Gregory	
2013/0189946	A1	7/2013	Swanson	
2013/0194091	A1	8/2013	Trundle	
2013/0215266	A1	8/2013	Trundle	
2013/0234840	A1	9/2013	Trundle	
2013/0321150	A1*	12/2013	Koenig	G08B 25/008 340/541

* cited by examiner

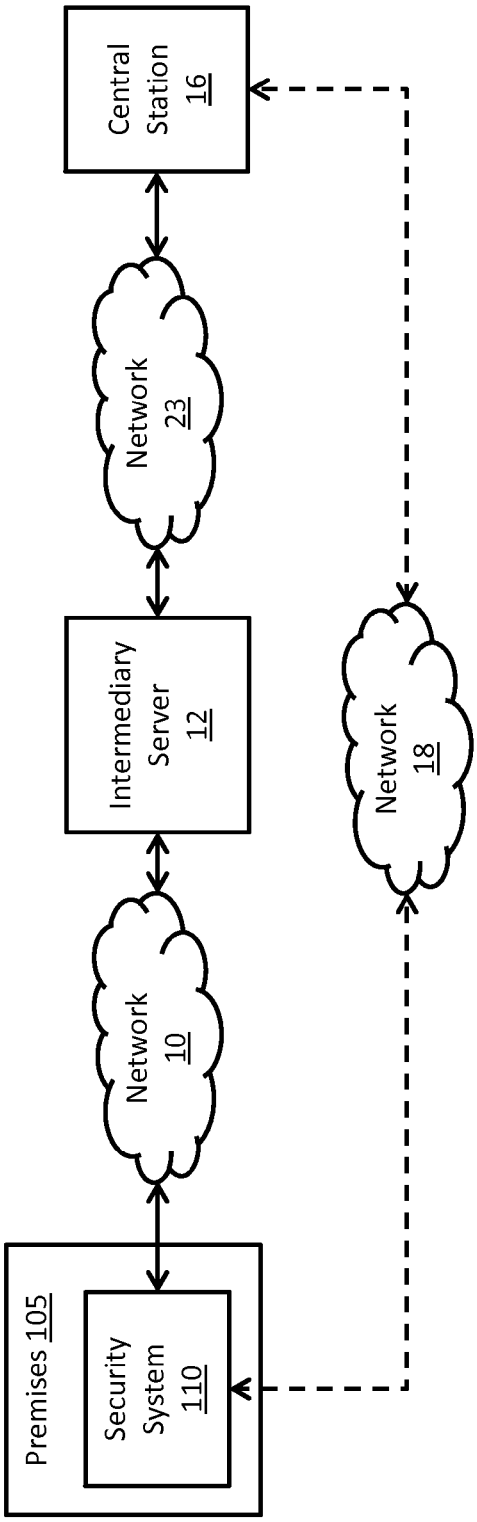

Central Station 16
Network 23
Intermediary Server 12
Network 10
Premises 105
Security System 110
Network 18
100

FIG. 1

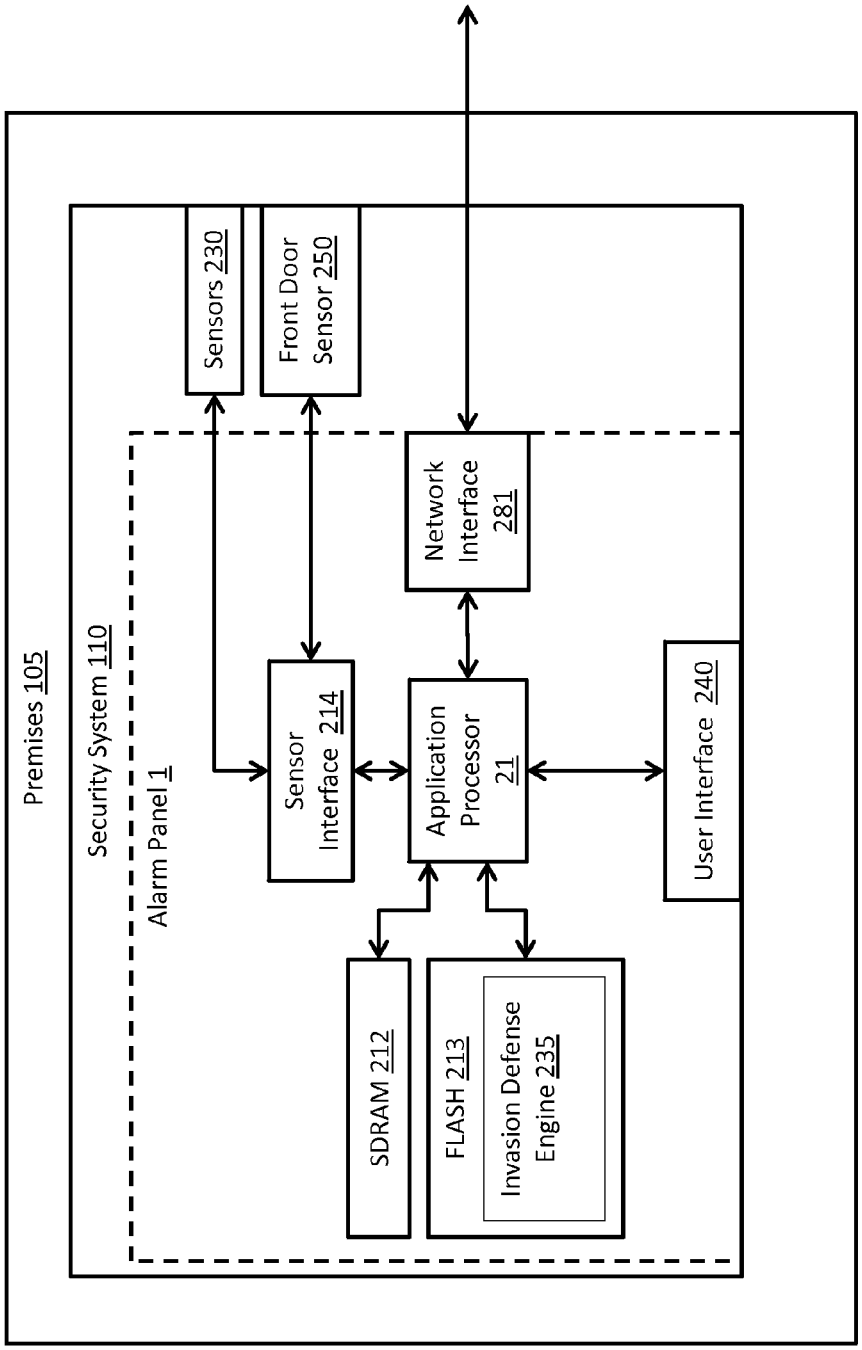

Premises 105
Security System 110
Alarm Panel 1
Sensors 230
Front Door Sensor 250
Network Interface 281
Sensor Interface 214
Application Processor 21
User Interface 240
SDRAM 212
FLASH 213
Invasion Defense Engine 235

FIG. 2

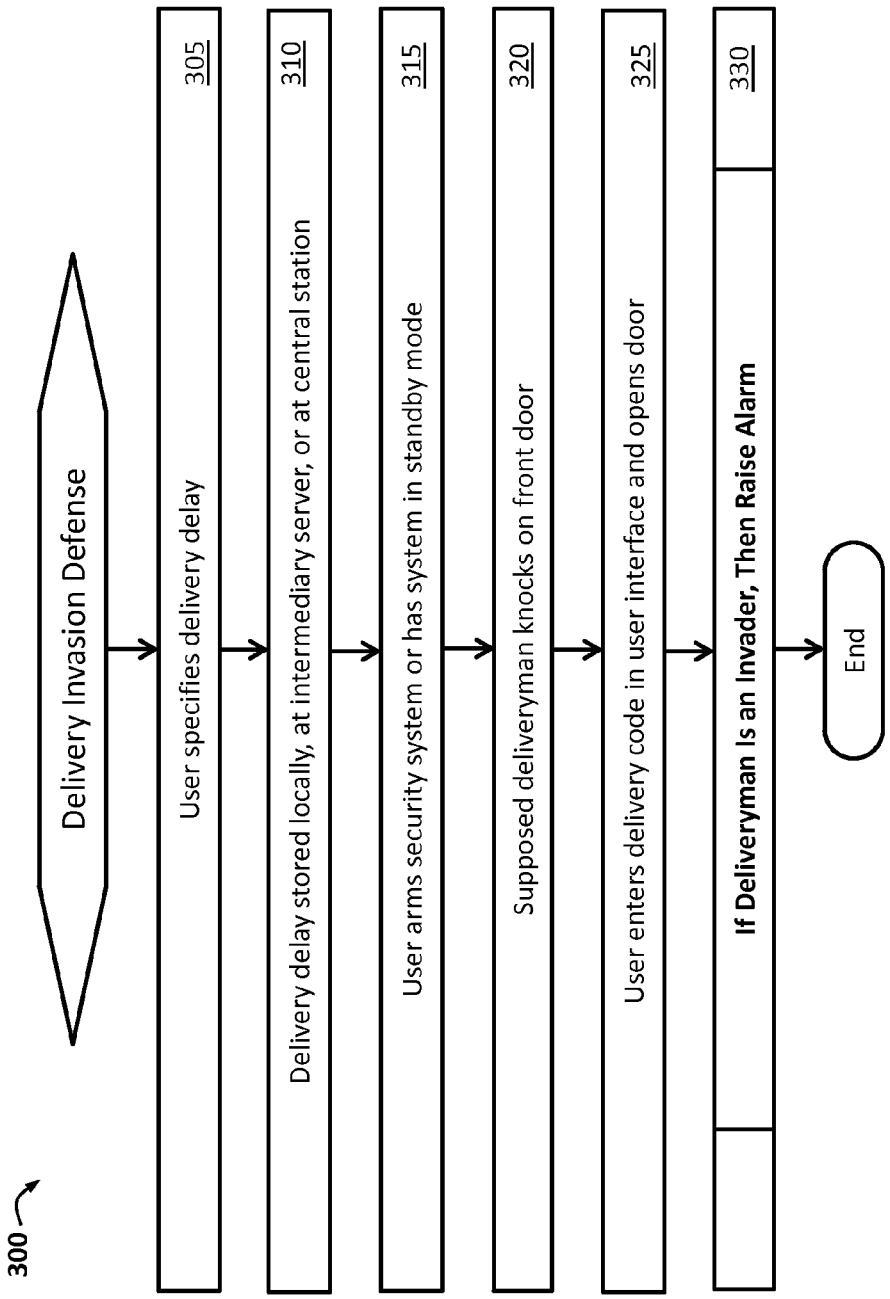

300
Delivery Invasion Defense
User specifies delivery delay
305
Delivery delay stored locally, at intermediary server, or at central station
310
User arms security system or has system in standby mode
315
Supposed deliveryman knocks on front door
320
User enters delivery code in user interface and opens door
325
If Deliveryman Is an Invader, Then Raise Alarm
330
End

FIG. 3

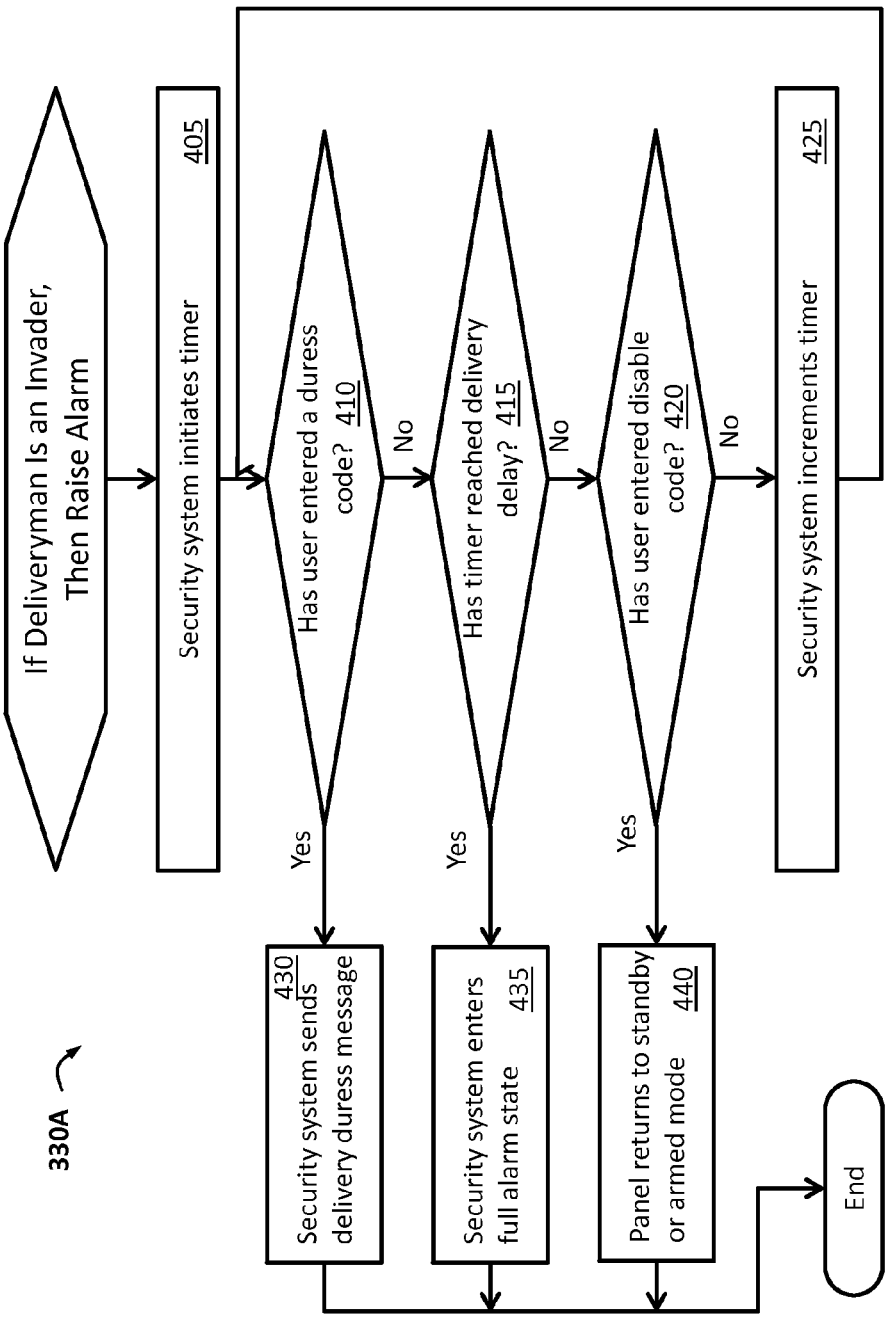

330A
If Deliveryman Is an Invader, Then Raise Alarm
Security system initiates timer 405
Has user entered a duress code? 410
Has timer reached delivery delay? 415
Has user entered disable code? 420
Security system increments timer 425
Yes
No
Security system sends delivery duress message 430
Security system enters full alarm state 435
Panel returns to standby or armed mode 440
End

FIG. 4

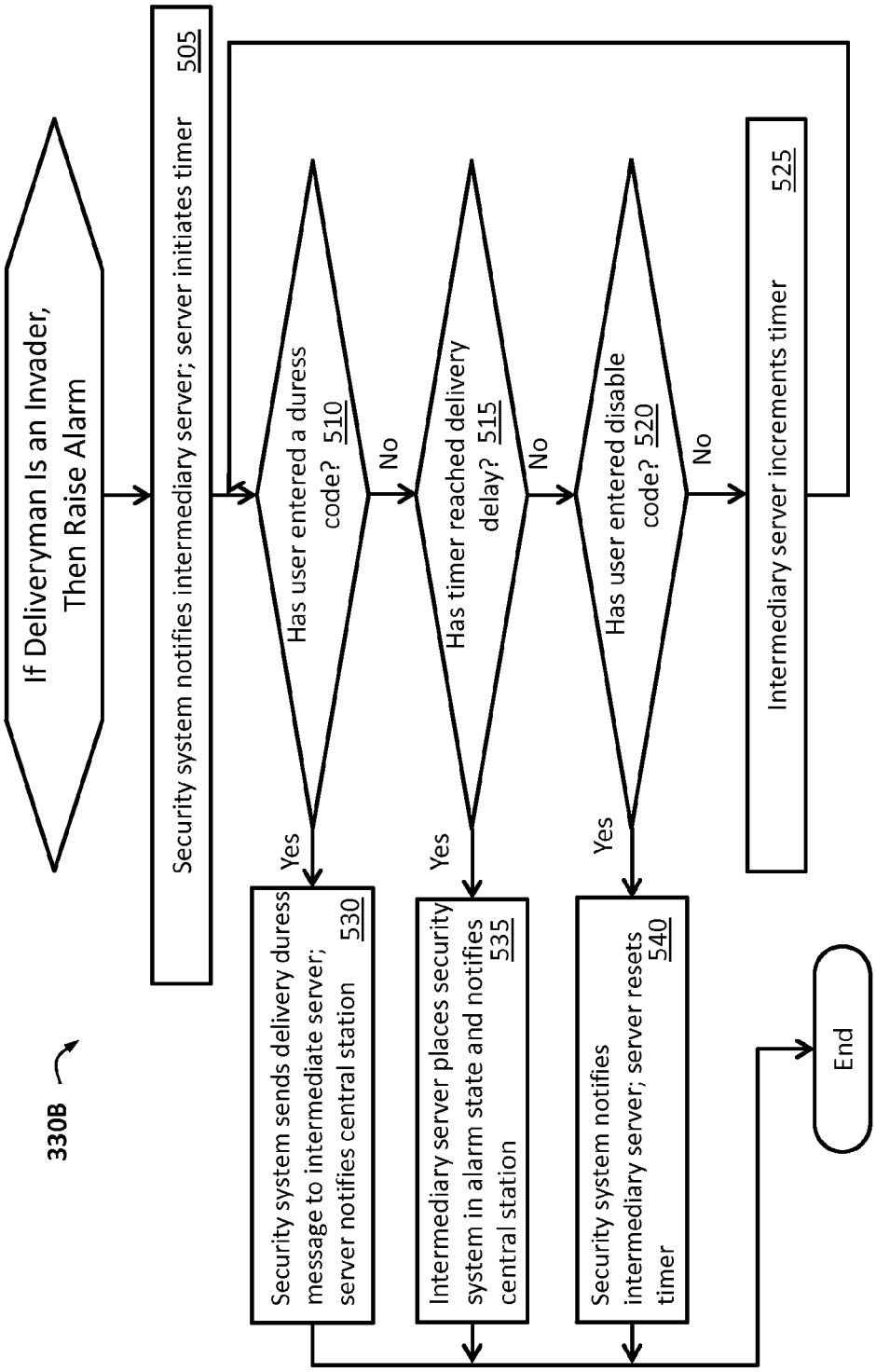

330B
If Deliveryman Is an Invader, Then Raise Alarm
Security system notifies intermediary server; server initiates timer 505
Has user entered a duress code? 510
Yes
No
Has timer reached delivery delay? 515
Yes
No
Has user entered disable code? 520
Yes
No
Intermediary server increments timer 525
Security system sends delivery duress message to intermediate server; server notifies central station 530
Intermediary server places security system in alarm state and notifies central station 535
Security system notifies intermediary server; server resets timer 540
End

FIG. 5

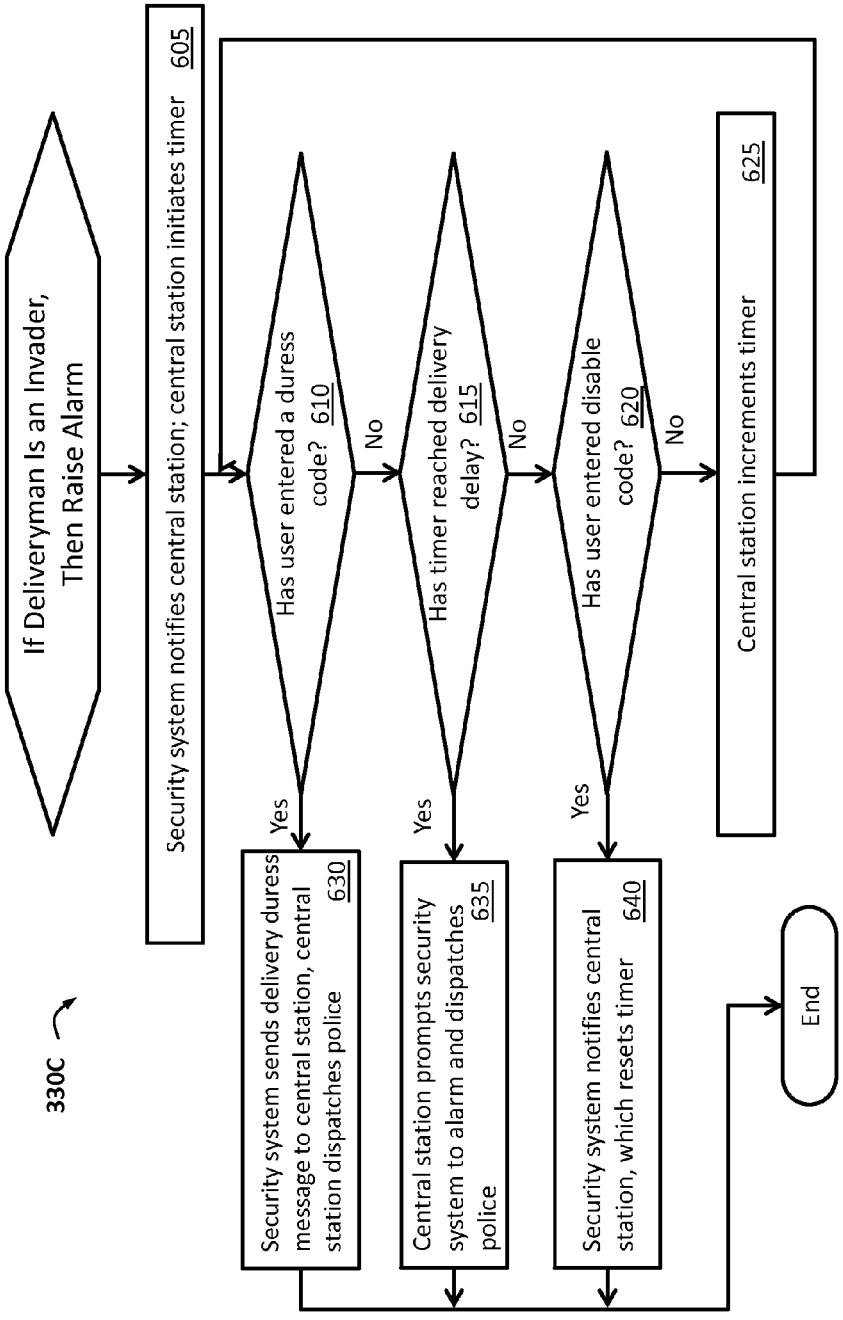

330C
If Deliveryman Is an Invader, Then Raise Alarm
Security system notifies central station; central station initiates timer 605
Has user entered a duress code? 610
Yes
No
Has timer reached delivery delay? 615
Yes
No
Has user entered disable code? 620
Yes
No
Central station increments timer 625
Security system sends delivery duress message to central station, central station dispatches police 630
Central station prompts security system to alarm and dispatches police 635
Security system notifies central station, which resets timer 640
End

FIG. 6

METHOD AND SYSTEM FOR MITIGATING INVASION RISK ASSOCIATED WITH STRANGER INTERACTIONS IN A SECURITY SYSTEM ENVIRONMENT

FIELD OF THE TECHNOLOGY

The present technology relates to security systems and more particularly to technology for mitigating an invasion risk associated with a user interacting with a stranger, for example when the user responds to a supposed deliveryman knocking on the front door of a premises.

BACKGROUND

A homeowner responding to a stranger knocking on the front door faces risk by responding. While the stranger may appear to be a deliveryman (or salesman, utility worker, etc.), the stranger may be an intruder masking as a deliveryman who will strike when the responder opens the door. While conventional security systems provide protection against various threats, this scenario poses unique security challenges. The responder is particularly vulnerable when he or she disarms the security system to open the door.

Accordingly, need is apparent for improvements in security system technology. Needs exist to protect users when responding to or otherwise interacting with strangers. A capability addressing one or more such needs, or some other related deficiency in the art, would support enhanced security.

SUMMARY

A security system can provide security, fire, protection, or other alarm services for a premises, such as for a building or other property, and/or for an associated person, such as a user or owner of the premises. A method can mitigate invasion risk associated with the person interacting with a stranger, for example someone who appears to be a deliveryman ringing a doorbell of the premises. The user can make an entry into a user interface of the security system in preparation for interacting with the stranger, such as when the user plans to answer the front door. The entry can start a timer. If the user does not make a second entry within a designated period of time indicating that the interaction safely concluded, the security system can raise an alarm or dispatch help.

The foregoing discussion of security systems and measures is for illustrative purposes only. Various aspects of the present technology may be more clearly understood and appreciated from a review of the following text and by reference to the associated drawings and the claims that follow. Other aspects, systems, methods, features, advantages, and objects of the present technology will become apparent to one with skill in the art upon examination of the following drawings and text. It is intended that all such aspects, systems, methods, features, advantages, and objects are to be included within this description and covered by this application and by the appended claims of the application.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a functional block diagram of a system in which a security system monitors a premises and may communicate with a central station via an intermediary server or directly in accordance with some example embodiments of the present technology.

FIG. **2** is a functional block diagram of the security system in accordance with some example embodiments of the present technology.

FIG. **3** is a flowchart of a process for defending against invasion by a stranger posing as a deliveryman or other legitimate person in accordance with some example embodiments of the present technology.

FIG. **4** is a flowchart of an embodiment of a sub-process for invasion defense that may be implemented in connection with the process of FIG. **3** in accordance with some example embodiments of the present technology.

FIG. **5** is a flowchart of an embodiment of another sub-process for invasion defense that may be implemented in connection with the process of FIG. **3** in accordance with some example embodiments of the present technology.

FIG. **6** is a flowchart of an embodiment of another sub-process for invasion defense that may be implemented in connection with the process of FIG. **3** in accordance with some example embodiments of the present technology.

Many aspects of the technology can be better understood with reference to the above drawings. The elements and features shown in the drawings are not necessarily to scale, emphasis being placed upon clearly illustrating the principles of exemplary embodiments of the present technology. Moreover, certain dimensions may be exaggerated to help visually convey such principles.

DESCRIPTION OF EXAMPLE EMBODIMENTS

Representative embodiments of the present technology relate generally to providing security, fire, protection, or other appropriate alarm services. The services may provide personal protection in connection with protecting property, such as premises, buildings, vehicles, etc.

The present technology can be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will be thorough and complete, and will fully convey the scope of the technology to those having ordinary skill in the art. Furthermore, all "examples," "embodiments," "example embodiments," or "exemplary embodiments" given herein are intended to be non-limiting and among others supported by representations of the present technology.

Some of the embodiments may comprise or involve processes that will be discussed below. Certain steps in the processes may need to naturally precede others to achieve intended functionality. However, the technology is not limited to the order of the steps described to the extent that reordering or re-sequencing does not render the processes useless or nonsensical. Thus, it is recognized that some steps may be performed before or after other steps or in parallel with other steps without departing from the scope and spirit of this disclosure.

Technology for providing invasion defense will now be described more fully with reference to FIGS. **1-6**, which describe representative embodiments of the present technology.

Turning now to FIG. **1**, this figure illustrates a functional block diagram of an example system **100** in which a security system **110** monitors a premises **105** and may communicate with a central station **16** via an intermediary server **12** or directly according to some embodiments of the present technology. FIG. **1** illustrates a representative, but not limiting, operating environment for an example embodiment of technology for invasion protection, as will be discussed in further detail below.

The central station **16** may be characterized as an alarm monitoring center or as a central monitoring station. In an example embodiment, the central station **16** provides alarm monitoring services for multiple security systems **110** located at different, geographically dispersed premises **105**, one instance of which is illustrated in FIG. **1**.

In some example embodiments, the security system **110** communicates with the central station **16** only over the network **18**. In various example embodiments, the network **18** can comprise one or more of a cellular network, the public switched telephone network (PSTN), the Internet, a packet-switched network, a Voice-over Internet Protocol (VoIP) network, an IP network, a private network, or other appropriate network or combination of networks. In some embodiments, the network **18** can provide a communication path between the security system **110** and the central monitoring station **16** that may be implemented via an IP network capable of communicating using IP telephony, Internet telephony, VoBB, broadband telephony, IP communications, broadband phone, VoLTE, or other appropriate technology. A VoIP communication of alarm event data can be carried via a **2**G, **3**G, **4**G, or other cellular, Wi-Fi, DECT, or other wireless transport mechanism, for example.

In some example embodiments, the security system **110** communicates with the central station **16** only via the intermediary server **12**. In the illustrated embodiment, the network **10** links the intermediary server **12** to the security system **110**, and the network **23** links the intermediary server to the central station. Thus, bidirectional communications can flow between the security system **110** and the central station **16** via a series combination of the network **10**, the network **23**, and the intermediary server **12**.

In various example embodiments, the network **10** can comprise one or more of a cellular network, the PSTN, the Internet, a packet-switched network, a VoIP network, an IP network, a private network, or other appropriate network or combination of networks. In various example embodiments, the network **23** can comprise one or more of a cellular network, the PSTN, the Internet, a packet-switched network, a VoIP network, an IP network, a private network, or other appropriate network or combination of networks. In some embodiments, the network **10** and/or the network **23** can provide a communication channel connecting the security system **110**, the intermediary server **12**, and the central monitoring station **16** that may be implemented via one or more IP networks capable of communicating using IP telephony, Internet telephony, VoBB, broadband telephony, IP communications, broadband phone, VoLTE, or other appropriate technology. A VoIP communication of alarm event data can be carried via a **2**G, **3**G, **4**G, or other cellular, Wi-Fi, DECT, or other wireless transport mechanism, for example.

In some example embodiments, the security system **110** communicates with the central station **16** via the intermediary server **12** and via the network **18**, either simultaneously or intermittently. Accordingly, the system **100** can provide the security system **110** with parallel, redundant, or alternative communication paths to the central station **16**.

In some embodiments, when the security system **110** initiates a communications connection to the central station **16**, the connection can extend in a digital format (or in a combination of digital and analog formats) to the central station **16**. In some example embodiments, VoIP formatted information can flow bidirectionally between the security system **110** and the central station **16**. The intermediary server **12**, for example, can maintain VoIP formatting while processing communications, including while varying one or more fields of a VoIP format, readdressing, changing headers, adjusting protocol specifics, etc.

The intermediary server **12** may also be characterized as an intermediate server and in some embodiments may comprise a communications gateway. In the illustrated embodiment, the intermediary server **12** is offsite of the premises **105**. In a representative embodiment, the intermediary server **12** additionally serves the security system **110** at the premises **105** as well as other security systems at other premises. Accordingly, the illustrated intermediary server **12** can provide a gateway for varied security systems that may be geographically dispersed. In some example embodiments, the intermediary server **12** may comprise or be characterized as a middleware server.

A representative server or gateway is disclosed in U.S. patent application Ser. No. 13/413,333 (filed Mar. 6, 2012 and entitled "Delivery of Alarm System Event Data and Audio Over Hybrid Networks") and Ser. No. 13/438,941 (filed Apr. 4, 2012 and entitled "Delivery of Alarm System Event Data and Audio"). The content and complete and entire disclosure made by each of these identified patent applications are hereby fully incorporated herein by reference.

The intermediary server **12** communicates with the central station **16**, which may be remote from the intermediary server **12**. However in some example embodiments, the intermediary server **12** is collocated with the central station **16**. Thus, the central station **16** may comprise one or more intermediary servers **12** that provide connectivity to various security systems. The central station **12** typically provides monitoring services that may include human operators interacting with security systems and users and dispatching emergency personnel when conditions warrant.

In some embodiments, a digital communication connection extends between the intermediary server **12** and a data router (not illustrated) that is located on the premises **105** and that is associated with the security system **110**. In such an embodiment, the network **10** can comprise the Internet providing a digital connection to the intermediary server **12**. In one example embodiment, an analog telephone adapter (not illustrated) and/or a router (not illustrated) addresses information packets of VoIP communications to the intermediary server **12**.

In some example embodiments, the intermediary server **12** analyzes the received signals for account verification and routing purposes, for example in accordance with typical practices of the alarm monitoring service industry. The intermediary server **12** can direct a digital connection to the central station **16** that is associated with the verified account of the security system **110** that originated an event report. For example, the intermediary server **12** may readdress packets to the central station **16**, with both networks **10**, **23** comprising the Internet or other appropriate IP network. The communication path between the intermediary server **12** and the central station **16** (as well the communication path between the intermediary server **12** and the security system **110**) can be implemented by an IP network capable of communicating utilizing VoIP, IP telephony, Internet telephony, VoBB, broadband telephony, IP communications, broadband phone, or VoLTE, for example.

In some embodiments, upon communication receipt at the central station **16**, a data switch (not illustrated) and an associated automation module (not illustrated) route information within the station **16**, for example activating displays and alerts as appropriate. In some example embodiments, an IP connection is terminated at such a data switch located within the central station **16**. In some example embodiments, the

central monitoring station **16** utilizes an internal IP network infrastructure, so that IP packets are routed throughout the station **16**.

For example, event data can be forwarded by a data switch and received and processed by an associated automation module that activates displays and alerts. Depending upon predetermined options associated with the account of the security system **110** that originated the event, event data may further trigger interconnection of a VoIP telephone call to enable a human operator of the central station **16** to communicate with an onsite speaker and microphone (not illustrated) of the security system **110**. Accordingly, the type of alarm event may be identified so that the operator or other personnel may act on it, for example to dispatch emergency service personnel.

Turning now to FIG. **2**, this figure illustrates an example functional block diagram of the security system **110** according to some embodiments of the present technology. In the illustrated example, the security system **110** comprises an alarm panel **1**, a front door sensor **250**, and other alarm sensors **230**. The sensors **230** may monitor other doors, windows, smoke, and so forth.

As illustrated, the alarm panel **1** of the security system **110** comprises a user interface **240** through which the user can enter commands and receive information. In some embodiments, the user interface **240** comprises a keypad that is wired to an application processor **21** of the alarm panel **1**. Such a keypad may be mounted to a wall in an appropriate place, for example, and may be collocated with the application processor **21** or may be located in a different area of the premises **105**. In some embodiments, the user interface **240** comprises a smartphone or other cellular or RF device that may communicate with the application processor **12** via wireless communication. The user interface **240** may comprise a graphical user interface (GUI) executed on smartphone or personal computer, for example.

The illustrated alarm panel **1** further comprises a network interface **281** for communicating with the central station **16** either directly or through the intermediary server **12** as discussed above.

In the illustrated embodiment, the alarm panel **1** comprises a sensor interface **214** that interfaces the sensors **230** and the front door sensor **250** with the application processor **21**, so that the application processor **21** can receive and act upon sensor signals. In some embodiments, the application processor **21** comprises an embedded processor for typical alarm functionality associated with interfacing with alarm sensors **230**, **250** via the sensor interface **214**. In an example embodiment, the application processor **21** can be microprocessor based, for example, and has associated memory. In the illustrated embodiment, the memory includes SDRAM memory **212** and FLASH memory **213**.

As illustrated, an invasion defense engine **235** is stored in the FLASH memory **213**. The invasion defense engine **235** can comprise instructions for providing a user with a defense against invasion by a stranger who is seeking to interact with the user or to gain access to the premises **105**. The invasion defense engine **235** can comprise computer executable instructions for executing the process **300** illustrated in FIG. **3**, with some sub-process embodiments illustrated in FIGS. **4**, **5**, and **6**, for example.

In some embodiments, the invasion defense engine **235** is stored in memory of the intermediary server **12** and is executed by a computer of the intermediary server **12**. In some embodiments, the invasion defense engine **235** is stored in memory of the central station **16** and is executed by a computer of the central station **16**.

In some embodiments, the invasion defense engine **235** is distributed between and stored in memory of any two or more of the central station **16**, the intermediary server **12**, and the security system **110**. In some embodiments, execution of the invasion defense engine **235** is distributed between computers of any two or more of the central station **16**, the intermediary server **12**, and the security system **110**.

Example embodiments of the invasion defense engine **235** will be discussed in further detail below with reference to FIGS. **3**, **4**, **5**, and **6**.

Turning now to FIG. **3**, this figure illustrates a flowchart of an example process **300** for defending against an invasion by a stranger posing as a deliveryman or other legitimate person according to some embodiments of the present technology. Process **300**, which is entitled Delivery Invasion Defense (without suggesting any limitations), can be executed by one or more of the central station **16**, the intermediary server **12**, and the security system **110**.

At block **305** of process **300**, the user enters into the user interface **240** a delay of sufficient duration to allow interaction with a legitimate deliveryman or other stranger seeking interaction or access, for example a salesman, service personnel, or utility worker. This "delivery delay" may be longer than another alarm delay that allows the user time to access and disarm the security system **110** when the user returns home and enters the front door with the system **110** armed.

At block **310** of process **300**, the delivery delay is stored at the security panel **1**, the intermediary server **12**, or at the central station **16** (or at two or more of these locations or at another appropriate site).

At block **315**, the user arms the security system **110**. Alternatively, the user may have the security system **110** in a standby mode.

At block **320**, a stranger requests or otherwise seeks interaction with the user or access to the premises **105**. For example, the stranger may be a supposed deliveryman knocking on a front door (or ringing a doorbell) at the premises **105**.

At block **325**, the user makes an entry into the user interface **240** to notify the security system **110** that the user intends to open the front door, which is detected by the front door sensor **250**, and interact with the stranger.

At block **330** one or more of the security system **110**, the intermediary server **12**, and the central station **16** mitigate the threat that the stranger is actually a would-be intruder. Block **330** is labeled (without suggesting limitation) if deliveryman is an invader, then raise alarm. FIG. **4** provides a flowchart for such mitigation utilizing blocks that can be computer implemented at the security system **110**. FIG. **5** provides a flowchart for such mitigation utilizing blocks that can be computer implemented at the intermediary server **12**. FIG. **6** provides a flowchart for such mitigation utilizing blocks that can be computer implemented at the central station **16**.

Turning now to FIG. **4**, this figure illustrates a flowchart of an embodiment of an example sub-process (process **330**A) for invasion defense that may be implemented within or in connection with the process **300** of FIG. **3** according to some embodiments of the present technology. For example, one or more computers executing process **300** may call process **330**A as a subroutine. In an example embodiment, a program or instruction set for process **300**A can be stored in memory at the security system **110** and computer executed.

At block **405**, the security system **110** initiates a timer to determine whether the delivery delay has been exceeded.

At inquiry block **410**, the security system **110** monitors the user interface **240** to determine whether the user has made a duress entry indicating that the stranger is an intruder who has forced the user to make a disarming or all-clear entry into the

security system **110**. The duress entry can be a code that seems to the intruder like a disarming entry but in fact triggers a silent alarm or a call for help.

If the security system **110** determines at inquiry block **410** that the user has entered a duress code, then block **430** executes. At block **430**, the security system **110** sends a duress message to the central station **16**, either directly or via the intermediary server **12**. The duress message notifies the central station **16** that the user is under duress. An operator at the central station **16** may open a voice channel to the alarm panel **1** or dispatch police or other emergency personnel. Process **330**A ends following execution of block **430**.

If execution of inquiry block **410** returns a negative determination, then inquiry block **415** executes. At inquiry block **415**, the security system **110** determines whether the timer, which was initiated at block **405**, has reached the delivery delay that the user entered at block **305** of process **300**.

If the delivery delay has been reached, then block **435** executes and the security system **110** enters a full alarm state. The security system **110** may sound an audible alarm, notify the central station **16** to send help, open a voice channel to an operator, or take other actions as may be programmed by the user or the security system manufacturer or as otherwise designated by an alarm monitoring service provider. Process **330**A ends following execution of block **435**.

Process **330**A executes inquiry block **420** following a negative determination at inquiry block **415**. At inquiry block **420**, the security system **110** determines whether the user has made a disarming or disabling entry, indicating that all is clear. If the user has made such an entry, then at block **440**, the alarm panel **1** returns to the prior state, which may be a standby mode or an armed mode as discussed above with reference to block **315** of process **300**. Process **330**A ends following execution of block **440**.

If inquiry block **420** returns a negative determination, then the security system **110** increments the timer at block **425** so that the timer continues to measure elapsed time. Process **330**A then loops back to block **410** and iterates until block **410**, **415**, or **420** returns a positive determination.

Turning now to FIG. **5**, this figure illustrates a flowchart of an embodiment of another example sub-process (process **330**B) for invasion defense that may be implemented within or in association with the process **300** of FIG. **3** according to some embodiments of the present technology. For example, one or more computers executing process **300** may call process **330**B as a subroutine. In an example embodiment, program instructions for process **300**B can be stored in memory at the intermediary server **12** and computer executed. For example, a timer function can be implemented at the intermediary server **12**.

At block **505**, the security system **110** notifies the intermediary server **12** of the user entry made at block **325** of process **300**. The intermediary server **12** initiates the timer.

At inquiry block **510**, the security system **110** determines whether the user has entered a duress code. If so, the security system **110** notifies the intermediary server **12** at block **530**, and the intermediary server **12** notifies the central station **16**. The central station **16** can dispatch emergency personnel as discussed above.

At inquiry block **515**, the intermediary server **12** determines if the timer initiated at block **505** has reached the delivery delay. If so, at block **535**, the intermediary server **12** sends a prompt to the security system **110** to go into alarm state and notifies the central station **16**, which may dispatch emergency personnel as discussed above.

At inquiry block **520**, the security system **110** determines whether the user has made a disable entry. If so, then the security system **110** notifies the intermediary server **12**, and the server **12** resets the timer.

If inquiry block **520** returns a negative determination, then the intermediary server **12** increments the timer at block **525** so that the timer continues to measure elapsed time. Process **330**B then loops back to block **510** and iterates until block **510**, **515**, or **520** returns a positive determination.

Turning now to FIG. **6**, this figure illustrates a flowchart of an embodiment of another example sub-process (process **330**C) for invasion defense that may be implemented within or in association with the process **300** of FIG. **3** according to some embodiments of the present technology. For example, one or more computers executing process **300** may call process **330**C as a subroutine. In an example embodiment, programmable instructions for process **300**C can be stored in memory at the central station **16** and computer executed. For example, a timer function can be implemented at the central station **16**.

At block **605**, the security system **110** notifies the central station **16** of the user entry made at block **325** of process **300**. The central station **16** initiates the timer.

At inquiry block **610**, the security system **110** determines whether the user has entered a duress code. If so, the security system **110** notifies the central station **16** at block **630**. The central station **16** can dispatch emergency personnel or otherwise intervene as discussed above.

At inquiry block **615**, the central station **16** determines if the timer initiated at block **605** has reached the delivery delay. If so, at block **635**, the central station **16** sends a prompt to the security system **110** to go into alarm state and may dispatch emergency personnel as discussed above, open a voice channel to the security system **110**, or otherwise intervene as discussed above.

At inquiry block **620**, the security system **110** determines whether the user has made a disable entry. If so, then the security system **110** notifies the central station **16**, which resets the timer.

If inquiry block **620** returns a negative determination, then the central station **16** increments the timer at block **625** so that the timer continues to measure elapsed time. Process **330**C then loops back to block **610** and iterates until block **610**, **615**, or **620** returns a positive determination.

Technology for security and invasion protection has been disclosed. From the description, it will be appreciated that embodiments of the present technology overcome limitations of the prior art. Those skilled in the art will appreciate that the present technology is not limited to any specifically discussed application or implementation and that the embodiments described herein are illustrative and not restrictive. From the description of the exemplary embodiments, equivalents of the elements shown therein will suggest themselves to those skilled in the art, and ways of constructing other embodiments of the present technology will appear to practitioners of the art.

What is claimed is:

1. A system for providing security comprising:

an alarm interface for connecting to one or more sensors disposed at a premises;

a user interface for receiving entries from a user;

a communication interface for remote communication; and

a processor that is connected to the alarm interface to receive signals from the one or more sensors, to the user interface to receive the entries from the user, and to the communication interface for off-premises communication;

wherein the processor is operable to:

determine if a first user entry indicates an interaction with a person posing a potential security risk;

if the first user entry indicates the interaction with the person posing the potential security risk, then monitor for a second user entry indicating that the person does not pose an actual security risk; and

if the second user entry is not detected within a specified time period, then transmit an alarm notification to the communication interface.

2. The system of claim **1**, wherein the processor is further operable to:

monitor for a third user entry indicating duress associated with the interaction; and

if the third user entry is detected, then transmit to the communication interface a duress notification.

3. The system of claim **2**, wherein the duress notification comprises a silent alarm.

4. The system of claim **1**, wherein the communication interface comprises an interface to a middleware server.

5. The system of claim **1**, wherein the communication interface comprises an interface to a central station.

6. The system of claim **1**, wherein computer executable instructions that are stored in memory of the processor are for:

determining if the first user entry indicates the interaction with the person posing the potential security risk;

if the first user entry indicates the interaction with the person posing the potential security risk, then monitoring for the second user entry indicating that the person does not pose the actual security risk; and

if the second user entry is not detected within the specified time period, then transmitting the alarm notification to the communication interface.

7. An intermediary server comprising:

a first interface for communicating with a security system disposed at a premises;

a second interface for communicating with a central station; and

a processor that is connected to the first and second interfaces and that is operable to:

determine if a first message received via the first interface indicates an interaction at the premises between a stranger and a user;

if the first message indicates the interaction, then monitor for a second message indicating that the user has assessed the stranger as not posing a security threat; and

if the second message is not detected within a specified time period, then transmit an alarm notification to the second interface.

8. The intermediary server of claim **7**, wherein the processor is further operable to:

monitor for a third message indicating user duress associated with the interaction; and

if the third message is detected, then transmit a duress notification to the second interface.

9. The intermediary server of claim **8**, wherein the duress notification comprises a silent alarm.

10. The intermediary server of claim **7**, wherein the first message is received in advance of the interaction.

11. The intermediary server of claim **7**, wherein an Internet interface comprises the first and second interfaces.

12. The intermediary server of claim **7**, wherein the first message is about the stranger approaching a front door of the premises.

13. The intermediary server of claim **7**, wherein the security system is operable to monitor the premises.

14. The intermediary server of claim **7**, wherein the intermediary server is collocated with the central station.

15. The intermediary server of claim **7**, wherein the intermediary server comprises a gateway.

16. A system comprising:

a computer-based processor that is connected to an interface for communicating with a security system and to a memory for executing instructions stored in the memory; and

computer-executable instructions stored in the memory for performing the steps of:

determining if a first message received via the interface is about an approach by a person that a user has deemed to pose a potential security threat;

if the first message is about the approach, then monitoring for a second message indicating that the user has determined that the potential security threat is not an actual security threat; and

if the second message is not detected within a specified time period, then deeming that the potential security threat is the actual security threat.

17. The system of claim **16**, wherein computer-executable instructions stored in the memory are further for performing the steps of:

monitoring during the specified time period for a third message comprising a duress code; and

if the third message comprising the duress code is detected during the specified time, then determining that the person has forced the user to send the third message.

18. The system of claim **16**, wherein the memory is disposed at a central station.

19. The system of claim **16**, wherein the memory is disposed at an intermediary server.

20. The system of claim **16**, wherein the security system is disposed at a premises, and

wherein the memory is remote from the premises.

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